

Appl. No. 10/713,335  
Att. Docket No. 10191/3416  
Reply To Office Action of 11/13/03

**Amendments to the CLAIMS:**

Without prejudice, this listing of the claims replaces all prior versions and listing of the claims in the present application:

**LISTING OF CLAIMS:**

1. (Currently Amended) A method for improving a resolution of an A/D converter, comprising:
  - receiving an analog signal;
  - superposing an auxiliary signal on the analog signal, whereby a superposed signal is produced;
  - sampling the superposed signal using an S/H device, whereby sampled values are produced;
  - performing an A/D conversion of the sampled values, whereby a number of digital output values are produced; and
  - determining a high-resolution digital output value based on the digital output values;  
wherein the high-resolution digital output value is determined from a ratio of one of those of the digital output values having a higher bit value and those of the digital output values having a lower bit value to a total number of the digital output values that were input.
2. (Original) The method as recited in Claim 1, wherein:
  - the high-resolution digital output value is determined by averaging the digital output values.
3. (Canceled).
4. (Original) The method as recited in Claim 1, wherein:
  - the auxiliary signal includes a periodic signal.
5. (Currently Amended) ~~The method as recited in Claim 1,~~ A method for improving a resolution of an A/D converter, comprising:

receiving an analog signal;  
superposing an auxiliary signal on the analog signal, whereby a superposed signal is produced;  
sampling the superposed signal using an S/H device, whereby sampled values are produced;  
performing an A/D conversion of the sampled values, whereby a number of digital output values are produced; and  
determining a high-resolution digital output value based on the digital output values;  
wherein[[:]] the auxiliary signal has a peak-to-peak amplitude that is greater than or equal to a resolution of a least significant bit of the digital output values.

6. (Currently Amended) ~~The method as recited in Claim 1;~~ A method for improving a resolution of an A/D converter, comprising:

receiving an analog signal;  
superposing an auxiliary signal on the analog signal, whereby a superposed signal is produced;  
sampling the superposed signal using an S/H device, whereby sampled values are produced;  
performing an A/D conversion of the sampled values, whereby a number of digital output values are produced; and  
determining a high-resolution digital output value based on the digital output values;  
wherein[[:]] the auxiliary signal includes one of a sine wave signal and a square-wave signal.

7. (Currently Amended) ~~The method as recited in Claim 1;~~ A method for improving a resolution of an A/D converter, comprising:

receiving an analog signal;  
superposing an auxiliary signal on the analog signal, whereby a superposed signal is produced;  
sampling the superposed signal using an S/H device, whereby sampled values are

produced;

performing an A/D conversion of the sampled values, whereby a number of digital output values are produced; and

determining a high-resolution digital output value based on the digital output values;

wherein[[:]] a sampling frequency at which the superposed signal is sampled by the S/H device is selected in such a way that a beat is produced.

8. (Currently Amended) An A/D converter system, comprising:

a device for superposing an auxiliary signal on an analog signal, whereby a superposed signal is produced;

an S/H device for sampling the superposed signal, whereby sampled values are produced;

an A/D converter that converts the sampled values into binary output values; and

a processing unit that determines a high-resolution output value based on the binary output values;

wherein the device for superposing the auxiliary signal includes one of a capacitor and a current source.

9. (Original) The A/D converter system as recited in Claim 8, wherein:

the processing unit determines the high-resolution output value by averaging the binary output values.

10. (Currently Amended) ~~The A/D converter system as recited in Claim 8,~~ An A/D converter system, comprising:

a device for superposing an auxiliary signal on an analog signal, whereby a superposed signal is produced;

an S/H device for sampling the superposed signal, whereby sampled values are produced;

an A/D converter that converts the sampled values into binary output values; and

a processing unit that determines a high-resolution output value based on the binary

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output values:

wherein[[:]] the processing unit determines the high-resolution digital output value from a ratio of one of those of the digital output values having a higher bit value and those of the digital output values having a lower bit value to a total number of the digital output values that were input.

11. (Currently Amended) The A/D converter system as recited in Claim [[8]] 10, wherein:

the device for superposing the auxiliary signal includes one of a capacitor and a current source.